

WHAT IS CLAIMED IS:

1. A method for providing contrast for alignment marks after a blanket metal deposition, comprising the steps of:

providing at least one trench in a first region and at least one trench in an alignment mark region of a semiconductor wafer;

depositing a first metal on the wafer;

blocking the first metal from filling the at least one trench in the alignment mark region to maintain the at least one trench in the alignment mark region in an unfilled state;

planarizing the wafer to remove the first metal from a top surface; and

blanket depositing a second metal layer on the first region and the alignment mark region such that the at least one trench in the alignment mark region is suitable for use as a scattering alignment mark.

2. The method as recited in claim 1, wherein the step of blocking the first metal deposition includes the steps of:

forming a seed layer over the wafer;

patterning a resist layer over the seed layer such that the seed layer in the at least one trench in the alignment mark region is exposed; and

5 etching the seed layer from the at least one trench in the alignment mark region such that when the first metal layer leaves the at least one trench in the alignment mark region unfilled after the deposition of the first metal layer.

10 3. The method as recited in claim 1, further comprising the step of scanning the wafer with laserlight to determine the position of the at least one trench in the alignment mark region.

15 4. The method as recited in claim 3, wherein the step of scanning the wafer with laserlight includes performing a laserlight scattering alignment.

20 5. The method as recited in claim 1, wherein the step of blanket depositing the second metal layer includes blanket depositing the second metal layer to a thickness less than an amount needed to completely fill the at least one trench in the alignment mark region.

6. The method as recited in claim 1, wherein the step of blocking the first metal deposition includes the steps of:

forming a block layer in the first region and in the alignment mark region to fill the at least one trench; and
5 patterning the block layer to remove the block layer from portions of the wafer other than the at least one trench in the alignment mark region.

7. A method for providing contrast for alignment marks after a blanket metal deposition, comprising the steps of:

etching at least one trench in a first region and at least one trench in an alignment mark region of a semiconductor wafer;
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forming a seed layer in the first region and the alignment mark region;

removing the seed layer from the at least one trench in the alignment mark region;

20 depositing a metal layer on the semiconductor wafer to fill the at least one trench in the first regions without filling the at least one trench in the alignment mark region;

planarizing the metal layer and the seed layer; and

blanket depositing a second metal layer on the first region and the alignment mark region such that the at least one trench in the alignment mark region is suitable for use as a scattering alignment mark.

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8. The method as recited in claim 7, wherein the step of removing the seed layer includes the steps of:

patterning a resist layer such that the at least one trench in the alignment mark region is exposed; and

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etching the seed layer from the at least one trench in the alignment mark region.

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9. The method as recited in claim 7, further comprising the step of scanning the wafer with laserlight to determine the position of the at least one trench in the alignment mark region.

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10. The method as recited in claim 9, wherein the step of scanning the wafer with laserlight includes performing a laserlight scattering alignment.

11. The method as recited in claim 7, wherein the step of blanket depositing the second metal layer includes

blanket depositing the second metal layer to a thickness less than an amount needed to completely fill the at least one trench in the alignment mark region.

5 12. A method for providing contrast for alignment marks after a blanket metal deposition, comprising the steps of:

 etching at least one trench in a first region and at least one trench in an alignment mark region of a
10 semiconductor wafer;

 forming a block layer in the first region and in the alignment mark region to fill the at least one trench;

 patterning the block layer to remove the block layer from portions of the wafer other than the at least one trench
15 in the alignment mark region;

 depositing a metal layer on the semiconductor wafer to fill the at least one trench in the first regions, the metal layer being excluded from the at least one trench in the alignment mark region by the block layer;

20 planarizing the metal layer;

 removing the block layer from the at least one trench in the alignment mark region; and

blanket depositing a second metal layer on the first region and the alignment mark region such that the at least one trench in the alignment mark region is suitable for use as a scattering alignment mark.

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13. The method as recited in claim 12, wherein the step of depositing the metal layer includes the steps of:

forming a seed layer in the first region and the block layer in the at least one trench in the alignment mark region.

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14. The method as recited in claim 12, further comprising the step of scanning the wafer with laserlight to determine the position of that the at least one trench in the alignment mark region.

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15. The method as recited in claim 14, wherein the step of scanning the wafer with laserlight includes performing a laserlight scattering alignment.

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16. The method as recited in claim 12, wherein the block layer includes silicon nitride.

17. The method as recited in claim 12, wherein the step of patterning the block layer includes the steps of:

forming a blocking mask by depositing a photoresist on the blocking layer;

5 patterning the photoresist to remain over the at least one trench in the alignment mark region; and

removing the blocking layer from portions of the wafer other than the at least one trench in the alignment mark region.

10 18. The method as recited in claim 17, wherein the photoresist includes a mid ultraviolet (MUV) photoresist.

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